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GOOD NAVAL-STORES PRACTICE

UNITED STATES DEPARTMENT OF AGRICULTURE

LEAFLET NUMBER 41

Based on studies of the Forest Service and the experience of successful operators

By AUSTIN CARY, *Logging Engineer, Forest Service*

Cups better that cut boxes.—Cut boxes yield less turpentine than cups—much less after the first year. Also they yield a lower grade of rosin than cups; and they expose the trees to damage. The practice of cutting boxes ought to be entirely discontinued.

Hanging cups.—Setting cups as low as possible prolongs the working life of faces. To cut into or expose the wood below the apron or gutter is needless. Cuts made deeper than is necessary to hold the apron or gutter in place reduce the sap flow. Such cuts made into faces when raising cups are particularly bad; in addition to reducing the yield they may cause the tree to break over. Half an inch is deep enough for any method; if the saw-tooth aprons are used a shallower cut suffices.

Some operators nail on tins, jump streak a little, and so get along without any cutting.

Advance streak.—Several weeks should elapse after the cups are hung and the first streak is cut, before regular chipping begins; a better yield is thus obtained. If cups are hung in November or December it is desirable to cut a second streak some weeks before regular work starts.

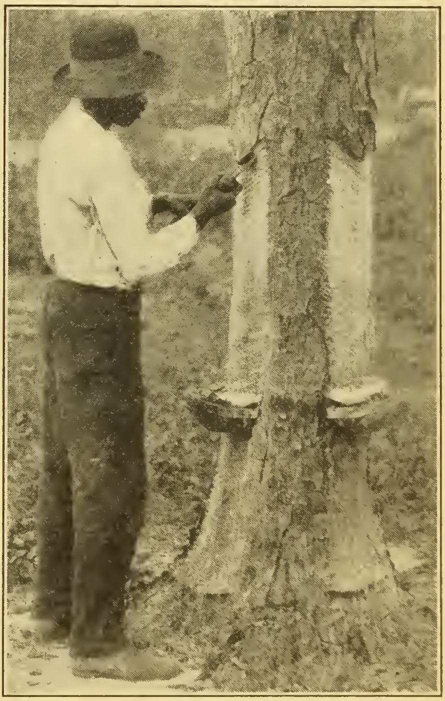

FIGURE 1.—The strip of bark left between the faces allows the tree to live and continue to grow

Chipping.—In chipping, a sharp hack, regularly timed work, and mechanical regularity that leaves the face smooth and straight at the edges, are established points in good practice.

Depth of streak.—Making the streak five-eighths of an inch or three-fourths of an inch deep at the deepest point, and about half as deep at the peak, is recognized as good practice. Thrifty long-leaf pine will stand somewhat deeper working, though it is not certain that the deeper streak results in any advantage. On the other hand, three-fourths of an inch is too deep for some old-growth long-leaf pine with thin sapwood, for trees with very small tops, and for slash pine. One-half-inch depth is suitable for such trees.

Height of streak.—Many operators go up the tree entirely too fast to secure the largest yield or the full working life of the face. A half-inch starts the gum running, and no difficulty has been experienced in getting chippers to make half-inch streaks. It is possible that a lighter cut would give as good results. Some men who use the half-inch cut are working timber two years longer than others who use a heavier cut.

A No. 1 hack will cut a streak on any timber that has not extremely thick bark. Many successful operators use a No. 0 hack.

Width of face.—A moderately wide face, the width governed by the depth of chipping as noted above, is the practice of successful operators and now appears to be most effective. In the first two years on small timber, the width of the face would be somewhat less than the diameter of the tree at breastheight, and on large old growth the maximum width would be about 15 inches. Too much exposure of the wood of the tree to evaporation can, of course, lead to drying out; but it seems to be true that this seldom results from careful working within the above limits, and a moderately wide face cuts more resin ducts than a narrow face.

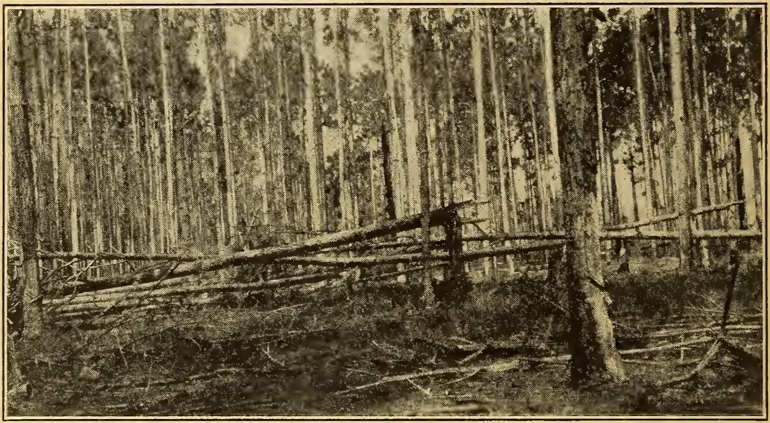

FIGURE 2.—Heavy destruction due to too deep cutting for insertion of tins and to two faces set back to back

Unprofitable faces.—Faces have been found in second-growth timber yielding as high as a pound of gum per streak, and others near by that yielded an ounce only. The one face represents a yield of over 100 barrels of spirits per crop; the other about 10 barrels. As the cost of cups, their handling, etc., and of the chipping is the same, it makes a vast difference which class of faces an operator is working. Overworked trees furnish many unprofitable faces; so do trees formerly worked out—probably burnt after being worked out and with little vitality and inadequate working space left. Crowded trees, with thin sapwood and small tops, may not stand ordinary working long enough to pay.

Sizes of trees.—Small trees will take only a narrow face, and they have not the power of generous gum production. A season's yield of gum from several hundred young long-leaf pines of different sizes, first and second year working, 30 streaks cut, in 1920 and 1921, was observed to be as follows: 6 inches, 4 pounds; 7 inches, 5½ pounds; 8 inches, 7 pounds, 9 inches, 8½ pounds; 10 inches, 10 pounds; 11 inches, 11½ pounds; 12 inches, 13 pounds.

The diameters given are at breastheight, and are about an inch smaller than diameters 2 feet from the ground. A 6-inch tree, as is shown above, yields only half as much as one 3 inches larger, and a third as much as a tree of 11 or 12 inches diameter. In general it may be said that timber smaller than 8 or 9 inches in diameter breast high should not be worked.

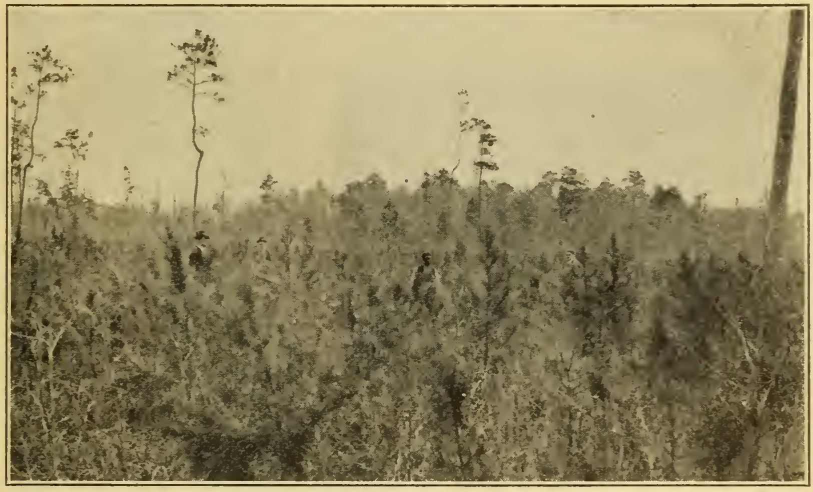

FIGURE 3.—Reproduction of slash pine under fire exclusion. It takes only 20 years to produce a new crop of turpentine timber

Number of faces per tree.—Overcupping is largely practiced today, to the disadvantage of those who practice it. There are limits to what a tree will produce; to divide that over two faces when one face would do is to double the cost of gum production. The tree's power to produce gum may also be lowered by the severity of working.

Careful men in the western portion of the pine belt put two faces only on trees 16 inches or more in diameter. It has been found true of second-growth long-leaf trees from 11 to 13 inches in diameter 2 feet from the ground that two faces carefully worked for three years will produce about 50 per cent more gum than one face. This means that the second face gets a yield equal only to that of a 7 or 8 inch tree and that the yield per crop is reduced by 10 or 15 barrels. More trees dry or die under two faces than under one.

The figures given above represent the results under careful working—bark bars well maintained and the chipping done carefully.

With careless working, bars cut, etc., the yield of 2-faced trees is further cut down or stopped entirely; also overcupped trees are subject to wind throw, particularly when two faces are set back to back. It has been observed that at the end of the first year young trees worked with three faces were yielding less gum that others of the same size with two faces.

Slash pine generally yields more gum than long-leaf. However, it seems to be more variable in its behavior, and it is less hardy, demanding more conservative and careful treatment.

A few things to remember.—Instances could be cited in which losses have been changed into profits by the observance of the rules formulated above.

Operators and timber owners should appreciate the fact that trees grow and should allow for this in their calculations. A few years may carry a tree from the doubtful into the highly profitable class. Working, even if carried on carefully, usually checks the growth of timber somewhat. Fire should be guarded against. Some men use it on occasion; sometimes they think they have to; but it destroys property, damages timber, and may frequently prevent the starting of a second crop. Usually it can be avoided on farm woodlands.

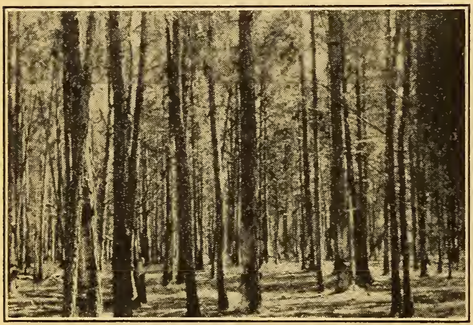

Figure 4.—Timber 25 years old carrying 200 cups to the acre

Operators and timber owners will also do well to consider the continuance of their business and of the revenue to be obtained from their wooded tracts. Observance of the above rules will promote both.

Naval stores are an essential commodity, and the lumber that may be obtained from turpentine trees is rapidly increasing in value. The French raise timber and produce naval stores continuously from the same tracts of land, having thus a permanent and, to them, very satisfactory business. We have better facilities than they possess, and no reason appears why we may not do the same.

How can the farmer owning timber protect himself when he leases it? By having a strict contract with the lessee and seeing that it is lived up to. This should not be difficult. Samples of the contract used by the Forest Service can be obtained by addressing the Forest Service, United States Department of Agriculture, Washington, D. C.

The farmer may also work his own timber and sell the gum; some farmers do. There have been what were really community stills, and such may, it is not unlikely, develop in the future as groups of men owning small tracts of land come to depend on income derived from this source.

Literature on various aspects of the naval stores business can be obtained by addressing the Office of Information, Department of Agriculture, Washington, D. C.

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